1/3/2007 Siemens 2x1 Plant Rev 4	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10	Case 11	Case 12	Case 13	Case 14	Case 15	Case 16	Case 17	Case 18	Case 19	Case 20
Plant configuration	2x1	2x1	2x1	2x1	2x1	2x1	2x1	2x1	2x1	2x1	2x1	2x1	2x1	2x1	1x1	1x1	1x1	1x1	1x1	1x1
CTG Load Point	Base Load	Base Load	Base Load	Base Load	Base Load	Base Load	Base Load	Base Load	Base Load	Base Load	Base Load	Base Load	Base Load	Part Load	Base Load	Base Load	Base Load	Base Load	Part Load	Base Load
Ambient Temperature, °F	103.0	103.0	85.0	63.0	26.0	112.0	107.0	97.0	97.0	75.0	51.0	103.0	63.0	63.0	103.0	103.0	63.0	63.0	63.0	26.0
Relative Humidity, %	20.1	20.1	25.0	40.0	60.0	17.0	18.0	20.0	20.0	34.0	60.0	20.1	40.0	40.0	20.1	20.1	40.0	40.0	40.0	60.0
Ambient Pressure, psia	14.52	14.52	14.52	14.52	14.52	14.52	14.52	14.52	14.52	14.52	14.52	14.52	14.52	14.52	14.52	14.52	14.52	14.52	14.52	14.52
Fogger Status	ON	ON	ON	ON	OFF	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF
Steam Injection Status	OFF	ON	OFF	OFF	OFF	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

Estimated Plant Performance

CT Generators terminal power, kW	356,400	399,800	373,000	390,200	420,000	392,200	397,000	407,000	362,800	380,000	392,400	315,200	375,400	227,200	178,200	157,600	195,100	187,700	113,600	210,000
ST Generator terminal power, kW	194,252	186,536	199,877	205,780	207,407	184,471	185,816	188,801	196,479	202,296	207,010	186,184	203,061	146,989	90,243	89,468	97,977	96,644	67,702	99,859
Condenser Pressure, in Hga	2.85	2.56	2.45	2.09	2.19	2.73	2.62	2.40	2.67	2.32	1.93	2.72	2.05	1.79	1.79	1.99	1.72	1.70	1.86	1.69
Gross Plant Power, kW	550,652	586,336	572,878	595,980	627,408	576,671	582,816	595,801	559,279	582,297	599,410	501,384	578,461	374,190	268,444	247,068	293,077	284,344	181,302	309,859
Total Fuel Input, MMBtu/hr (HHV)	3,702	3,998	3,821	3,946	4,175	3,944	3,978	4,048	3,747	3,872	3,960	3,383	3,832	2,705	1,851	1,691	1,973	1,916	1,352	2,087
Gross Plant Heat Rate, Btu/kWh (HHV)	6,723	6,818	6,670	6,621	6,654	6,840	6,825	6,795	6,700	6,649	6,606	6,747	6,624	7,228	6,895	6,846	6,732	6,738	7,459	6,736
Plant Auxiliary Loads, kW	13,198	13,592	13,375	13,553	13,099	13,516	13,566	13,670	13,269	13,443	13,410	12,602	13,237	11,186	8,728	8,180	8,435	8,278	7,091	8,291
Net Plant Power, kW	537,454	572,744	559,503	582,426	614,309	563,155	569,250	582,131	546,010	568,853	586,000	488,782	565,224	363,004	259,716	238,887	284,641	276,066	174,211	301,569
Net Plant Heat Rate, Btu/kWh (HHV)	6,888	6,980	6,829	6,775	6,796	7,004	6,988	6,954	6,862	6,806	6,757	6,921	6,779	7,450	7,127	7,080	6,932	6,940	7,762	6,921

STREAM

2	HP Steam Turbine Inlet																			
	Mass Flow, lb/hr	836,245	894,312	847,558	859,566	871,340	888,633	892,109	900,152	840,374	852,648	859,547	796,680	846,105	624,007	442,173	421,370	453,502	447,045	331,116	461,952
	Pressure, psia	1,767	1,879	1,789	1,813	1,825	1,867	1,874	1,890	1,775	1,800	1,812	1,686	1,786	1,330	956	912	980	966	719	993
	Temperature, °F	1,050	1,050	1,050	1,049	1,034	1,050	1,050	1,050	1,050	1,050	1,048	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,037
	Enthalpy, Btu/lb	1,512	1,509	1,512	1,510	1,501	1,509	1,509	1,509	1,512	1,511	1,510	1,515	1,512	1,525	1,535	1,536	1,534	1,535	1,541	1,527
9	IP Steam Turbine Inlet																				
	Mass Flow, lb/hr	1,008,058	903,869	1,015,939	1,024,682	1,043,890	902,297	903,279	906,325	1,010,733	1,020,169	1,022,583	970,216	1,012,138	742,587	521,318	500,621	530,677	524,124	384,564	540,982
	Pressure, psia	427	384	430	434	440	383	384	385	428	432	433	411	429	315	224	213	226	223	164	229
	Temperature, °F	1,050	1,050	1,050	1,050	1,037	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,039
	Enthalpy, Btu/lb	1,549	1,550	1,549	1,549	1,542	1,550	1,550	1,550	1,549	1,549	1,549	1,550	1,549	1,552	1,555	1,555	1,555	1,555	1,556	1,549
10	LP Steam Turbine Exhaust																				
	Mass Flow, lb/hr	1,203,905	1,096,174	1,216,182	1,229,420	1,260,387	1,092,834	1,094,933	1,100,271	1,208,260	1,222,354	1,227,955	1,153,057	1,212,383	889,812	604,212	576,633	618,926	609,795	443,039	635,813
	Pressure, psia	1.4	1.3	1.2	1.0	1.1	1.3	1.3	1.2	1.3	1.1	0.9	1.3	1.0	0.9	0.9	1.0	0.8	0.8	0.9	0.8
	Temperature, °F	113	110	108	103	104	112	110	107	111	106	100	112	102	97	105	101	96	96	99	96
	Enthalpy, Btu/lb	1,064	1,065	1,054	1,043	1,043	1,069	1,066	1,060	1,060	1,050	1,039	1,064	1,043	1,054	1,107	1,089	1,076	1,076	1,101	1,072
14	Preheater Inlet																				
	Mass Flow, lb/hr	699,562	778,960	707,656	716,848	736,578	774,312	777,122	783,580	702,651	712,108	716,923	668,438	706,528	545,097	711,661	683,571	726,788	717,481	543,699	743,884
	Pressure, psia	104	102	105	107	111	101	102	103	104	106	107	98	105	74	80	76	81	81	66	82
	Temperature, °F	126	124	122	117	119	126	125	122	124	120	115	125	117	133	112	116	110	110	117	109
	Enthalpy, Btu/lb	94	92	90	86	87	94	93	90	93	89	83	93	85	101	80	84	79	78	85	77
18	HRSG LP Superheater Outlet																				
	Mass Flow, lb/hr	93,744	91,679	95,885	98,071	103,892	90,821	91,370	92,462	94,560	96,818	98,388	87,443	95,892	70,494	78,473	71,797	83,708	81,200	55,164	90,211
	Pressure, psia	78	72	79	80	82	72	72	72	78	79	80	74	79	58	45	40	44	43	31	46
	Temperature, °F	627	638	629	631	631	637	638	639	628	630	631	621	629	592	581	574	586	584	549	586
	Enthalpy, Btu/lb	1,344	1,350	1,345	1,346	1,346	1,350	1,350	1,351	1,345	1,346	1,346	1,342	1,346	1,329	1,324	1,321	1,326	1,325	1,309	1,327
19	LP Steam Turbine Inlet																				
	Mass Flow, lb/hr	187,489	183,358	191,770	196,142	207,784	181,642	182,739	184,924	189,120	193,636	196,777	174,886	191,783	140,989	78,473	71,797	83,708	81,200	55,164	90,211
	Pressure, psia	73	67	74	75	77	67	67	67	74	74	75	70	74	54	39	35	38	37	27	39
	Temperature, °F	627	638	629	631	631	637	637	639	627	629	630	620	629	592	580	573	585	583	548	585
	Enthalpy, Btu/lb	1,344	1,350	1,345	1,346	1,346	1,350	1,350	1,351	1,345	1,346	1,346	1,342	1,346	1,329	1,324	1,321	1,326	1,325	1,309	1,327
50	Air to Fogger Inlet																				
	Mass Flow, lb/hr	3,642,488	3,640,041	3,763,265	3,886,274	4,090,699	3,588,033	3,619,900	3,686,788	3,689,084	3,814,960	3,916,695	3,435,244	3,818,260	2,753,741	3,642,488	3,435,244	3,888,621	3,818,260	2,753,741	4,090,699
	Temperature, °F	103	103	85	63	26	112	107	97	97	75	51	103	63	63	103	103	63	63	63	26
64	Stack Outlet																				
	Mass Flow, lb/hr	3,748,585	3,870,106	3,865,421	3,982,275	4,182,271	3,819,495	3,851,194	3,917,983	3,794,685	3,913,153	4,003,557	3,509,449	3,902,314	2,813,068	3,748,585	3,509,449	3,982,275	3,902,314	2,813,068	4,182,271
	Temperature, °F	194	188	193	192	195	189	188	187	194	193	190	189	190	186	179	180	180	180	180	180
65	Fuel Gas Heater Fuel Inlet																				
	Mass Flow, lb/hr	81,206	87,691	83,814	86,564	91,572	86,523	87,258	88,800	82,193	84,931	86,863	74,205	84,054	59,326	81,206	74,205	86,564	84,054	59,326	91,572
	Pressure, psia	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
	Temperature, °F	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
69	Steam Injection to Unit 1																				
	Mass Flow, lb/hr	0	117,500	0	0	0	116,000	117,000	119,000	0	0	0	0	0	0	0	0	0	0	0	0
	Pressure, psia	475	350	479	484	490	350	350	350	476	481	483	456	478	352	313	297	318	314	231	323
	Temperature, °F	699	485	698	696	685	485	485	485	698	697	695	701	697	700	755	754	752	752	753	742
	Enthalpy, Btu/lb	1,359	1,242	1,358	1,356	1,350	1,242	1,242	1,242	1,358	1,357	1,356	1,361	1,358	1,366	1,397	1,398	1,395	1,396	1,400	1,390

Figure 3.2 - Heat and Material Balances for Siemens SGT6-5000F Plant Configuration